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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,437	10/01/2003	Mitchell Alsup	5500-91600	7052
53806	7590	02/14/2006		
MEYERTONS, HOOD, KIVLIN, KOWERT & GOETZEL (AMD)				
P.O. BOX 398				
AUSTIN, TX 78767-0398				

EXAMINER	
KIM, HONG CHONG	

ART UNIT	PAPER NUMBER
2185	

DATE MAILED: 02/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/676,437

Applicant(s)

ALSUP ET AL.

Examiner

Hong C. Kim

Art Unit

2185

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,6-10,12,13,17-21,23,24,28 and 30 is/are rejected.
- 7) ☒ Claim(s) 3-5,11,14-16,22,25-27 and 29 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### Detailed Action

1. Claims 1-30 are presented for examination. This office action is in response to the application filed on 10/1/03.

2. Applicants are reminded of the duty to disclose information under 37 CFR 1.56.

The examiner requests, in response to this Office action, any reference(s) known to qualify as prior art under 35 U.S.C. sections 102 or 103 with respect to the invention as defined by the independent and dependent claims. That is, any prior art (including any products for sale) similar to the claimed invention that could reasonably be used in a 102 or 103 rejection. This request does not require applicant to perform a search. This request is not intended to interfere with or go beyond that required under 37 C.F.R. 1.56 or 1.105.

The request may be fulfilled by asking the attorney(s) of record handling prosecution and the inventor(s)/assignee for references qualifying as prior art. A simple statement that the query has been made and no prior art found is sufficient to fulfill the request. Otherwise, the fee and certification requirements of 37 CFR section 1.97 are waived for those documents submitted in reply to this request. This waiver extends only to those documents within the scope of this request that are included in the application's first complete communication responding to this requirement. Any supplemental replies subsequent to the first communication responding to this request and any information disclosures beyond the scope of this are subject to the fee and certification requirements of 37 CFR section 1.97.

In the event prior art documentation is submitted, a discussion of relevant passages, figs. etc. with respect to the claims is requested. The examiner is looking for specific references to 102/103 prior art that identify independent and dependent claim limitations. Since applicant is most knowledgeable of the present invention and submitted art, his/her discussion of the reference(s) with respect to the instant claims is essential. **A response to this inquiry is greatly appreciated.**

**The examiner also requests**, in response to this Office action, support be shown for language added to any original claims on amendment and any new claims. That is, indicate support for newly added claim language by specifically pointing to page(s) and line number(s), in the specification and/or drawing figure(s). This will assist the examiner in prosecuting the application.

3. Applicants are requested to update the status of the related U.S. patent application, accordingly (e.g., U.S. Patent Application Serial No. ###/###,### filled Sept. 07, 1990, now abandoned; ..., now U.S. Patent #,###,### issued Jan. 01, 1994; or This application is a continuation of Serial Number ###/###,###, filed on December 01, 1990, now abandoned; ...etc.). Also applicants are requested to include the status of the related U.S. applications or patents in the CROSS-REFERENCE TO RELATED APPLICATIONS section and in any other corresponding area in the specification. If Any.

#### ***Claim Objections***

4. Claim 30 is objected to because of the following informalities:

It is unclear what is meant by “the one or more instructions”. It is unclear what is meant by “means for storing do not store the exceptional instruction within the trace cache entry with the one or more instruction”, it appears “do” should be changed to –does— for clarity and “the one ore” to –non-exceptional—for consistency (i.e. see claim 1) . . . Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claim 30 is rejected under 35 U.S.C. 102(e) as being anticipated by Miller et al. (Miller) US Patent Pub. No. 2004/0193857.

As to claim 1, Miller discloses a system (Fig. 1), comprising: means for storing a group of instructions in a trace cache entry within a trace cache (block 14 lines 15-18); means for detecting an exceptional instruction within the group of instructions; and wherein in response to said detecting, the means for storing do not store the exceptional instruction within the trace cache entry with the one or more instructions (block 14 lines 28+ storing only exceptions or corrections read on this limitation).

As to claim 7, KALAFATIS discloses the invention as claimed above.

KALAFATIS further discloses the first requester is a processing node (page 1 lines 28-29) that includes multiple processors, wherein the circuit resides within one of the multiple processors and includes logic to execute an instruction to stall the processor until all of the invalidation operations have been completed for data previously provided to the processor (page 2 lines 28-31 and page 3 lines 5-8).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 30, 1-2, 6-10, 12-13, 17-21, 23-24, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kalafatis US Patent Pub. No. 2003/0023835 in view of Mann US Patent No. 6,167,536.

As to claim 30, Kalafatis discloses a system, comprises means for storing a group of instructions in a trace cache entry within a trace cache (Fig. 4 Ref. 62). However, Kalafatis does not specifically disclose means for detecting an exceptional instruction within the group of instructions and wherein in response to said detecting,

the means for storing do not store the exceptional instruction within the trace cache entry with the one or more instructions

Mann discloses means for detecting an exceptional instruction within the group of instructions and wherein in response to said detecting, the means for storing do not store the exceptional instruction within the trace cache entry with the one or more instructions (abstract) for the purpose of eliminate unnecessary steps thereby increasing the system bandwidth (co. 3 lines 20-35).

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate means for detecting an exceptional instruction within the group of instructions and wherein in response to said detecting, the means for storing do not store the exceptional instruction within the trace cache entry with the one or more instructions as taught by Mann into the system of Kalafatis for the advantages stated above.

As to claims 1, 12 and 23, Kalafatis discloses a system (Fig. 4), comprises an instruction cache (Fig. 4 Ref. 44) a trace cache including a plurality of trace cache entries (Fig. 4 Ref. 62); and a trace generator (Fig. 4 Refs. 112 and 106) coupled to the instruction cache and the trace cache; wherein the trace generator is configured to receive a group of instructions output by the instruction cache for storage in one of the plurality of trace cache entries (Fig. 4). However, Kalafatis does not specifically disclose the trace generator is configured to detect an exceptional instruction within the

group of instructions and to prevent the exceptional instruction from being stored in a same one of the plurality of trace cache entries as any non-exceptional instruction.

Mann discloses the trace generator is configured to detect an exceptional instruction within the group of instructions and to prevent the exceptional instruction from being stored in a same one of the plurality of trace cache entries as any non-exceptional instruction (abstract) for the purpose of eliminate unnecessary steps thereby increasing the system bandwidth (co. 3 lines 20-35).

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the trace generator is configured to detect an exceptional instruction within the group of instructions and to prevent the exceptional instruction from being stored in a same one of the plurality of trace cache entries as any non-exceptional instruction as taught by Mann into the system of Kalafatis for the advantages stated above.

As to claims 2, 13, and 24, Kalafatis and Mann disclose the invention as claimed above. Mann further discloses wherein the trace generator is configured to store instructions in the trace cache in at least partially decoded form (co. 3 lines 20-35).

As to claims 6 and 17, Kalafatis and Mann disclose the invention as claimed above. Mann further discloses further comprising a dispatch unit configured to dispatch instructions received from the instruction cache, wherein the dispatch unit is configured to detect the exceptional instruction within a group of instructions received



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from the instruction cache and to provide an indication of the exceptional instruction to the trace generator, wherein the trace generator is configured to detect the exceptional instruction in response to the indication from the dispatch unit (co. 3 lines 20-35).

As to claims 7 and 18, Kalafatis and Mann disclose the invention as claimed above. Mann further discloses wherein the trace generator is configured to detect the exceptional instruction in response to a characteristic of the exceptional instruction (co. 3 lines 20-35).

As to claims 8, 19, and 28, Kalafatis and Mann disclose the invention as claimed above. Mann further discloses wherein the trace generator is configured to not store the exceptional instruction in the trace cache (co. 3 lines 20-35).

As to claims 9 and 20, Kalafatis and Mann disclose the invention as claimed above. Mann further discloses wherein the trace generator is configured to store the exceptional instruction in a different trace cache entry than the one or more other instructions, wherein the trace generator is configured to not store any other instructions with the exceptional instruction in the different trace cache entry (co. 3 lines 20-35).

As to claims 10 and 21, Kalafatis and Mann disclose the invention as claimed above. Mann further discloses wherein the exceptional instruction is a non-re-executable instruction (co. 3 lines 20-35).

### ***Allowable Subject Matter***

7. Claims 3-5, 11, 14-16, 22, 25-27 and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See attached PTO-892.

2. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) days from the mail date of this letter. Failure to respond within the period for response will result in **ABANDONMENT** of the application (see 35 USC 133, MPEP 710.02, 710.02(b)).

3. When responding to the office action, Applicant is advised to clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. He or she must also show how the amendments avoid such references or objections. See 37 C.F.R. ' 1.111(c).

4. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist examiner to locate the appropriate paragraphs.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hong Kim whose telephone number is (571) 272-4181. The examiner can normally be reached on M-F 9:00 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on (571) 272-4182. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 whose telephone number is (571) 272-2100.

6. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

7. **Any response to this action should be mailed to:**

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Commissioner of Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**or faxed to TC-2100:**  
571-273-8300

Hand-delivered responses should be brought to the Customer Service Window (Randolph Building, 401 Dulany Street, Alexandria, VA 22314).

HK  
Primary Patent Examiner  
February 7, 2006

A handwritten signature in black ink, appearing to be 'H. K.', written over the printed name of the Primary Patent Examiner.